

CLAIM LISTING

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-50 (cancelled)

51. (original) A method of administering a botulinum toxin to a subject comprising topically applying to the skin or epithelium of the subject the botulinum toxin in conjunction with an effective amount of a carrier comprising a polymeric backbone having attached positively charged branching groups, wherein the association between the carrier and the botulinum toxin is non-covalent.
52. (currently amended) [[A]] The method according to claim 51 comprising topically applying to the skin or epithelium of the subject an effective amount of a composition according to claim 1.
53. (currently amended) [[A]] The method according to claim 51 in comprising separately applying the botulinum toxin and the carrier to the skin or epithelium of the subject.
54. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is administered to achieve a desired biologic effect.
55. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is administered to achieve an aesthetic or cosmetic benefit.

56. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied to reduce or prevent an immune response.
57. (currently amended) [[A]] The method according to claim 56 in which the reduced or prevented immune response improves therapeutic response on later repeat re-administrations of the composition.
58. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is administered for prevention or reduction of symptoms associated with subjective or clinical hyperhidrosis.
59. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of subjective or clinical dystonic contractions or dystonia.
60. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with muscle spasm.
61. (currently amended) [[A]] The method according to claim 60 in which the botulinum toxin is applied topically to the lower back of the subject.

62. (currently amended) [[A]] The method according to claim 60 in which the botulinum toxin is topically applied to the neck of the subject.
63. (currently amended) [[A]] The method according to claim 60 in which the botulinum toxin is topically applied to at least one leg of the subject.
64. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is applied topically to the face of the subject, or to a portion thereof.
65. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is applied topically to the axilla of the subject, or to a portion thereof.
66. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is applied topically to the palms of the hands or to the feet of the subject, or to a portion thereof.
67. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is applied topically to the back or neck of the subject, or to a portion thereof.
68. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is applied topically to the groin of the subject, or to a portion thereof.

69. (currently amended) [[A]] The method according to claim 51 in which the composition is applied topically to the hands or feet of the subject, or to a portion thereof.
70. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is applied topically to the elbows, upper arms, knees, or upper legs of the subject, or to a portion thereof.
71. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is applied topically to the buttocks of the subject or to a portion thereof.
72. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is applied topically to the torso of the subject or to a portion thereof.
73. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is applied topically to the pelvis of the subject or to a portion thereof.
74. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is applied to generate or enhance an immune response.
75. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with migraine headache.

76. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is applied topically for prevention or reduction of acne.
77. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is a botulinum toxin derivative.
78. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin comprises a recombinant botulinum toxin.
79. (currently amended) [[A]] The A method according to claim 51 in which the botulinum toxin comprises a modified botulinum toxin.
80. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is selected from botulinum toxin serotypes A, B, C, D, E, F and G.
81. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is botulinum toxin A.
82. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is botulinum toxin B.
83. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is botulinum toxin C.

84. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is botulinum toxin D.
85. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is botulinum toxin E.
86. (currently amended) [[A]] The method according to claim 51 in which the carrier comprises a polymeric backbone having attached positively charged branching groups selected from $-(\text{gly})_{n1}-(\text{arg})_{n2}$, HIV-TAT, Antennapedia PTD, and fragments of HIV-TAT or of Antennapedia PTD, in which the subscript $n1$ is an integer of from 0 to about 20, and the subscript $n2$ is independently an odd integer of from about 5 to about 25.
87. (currently amended) [[A]] The method according to claim 86 in which the carrier comprises a polypeptide having positively charged branching groups selected from $-(\text{gly})_{n1}-(\text{arg})_{n2}$ in which the subscript $n1$ is an integer of from about 0 to about 20 and the subscript $n2$ is independently an odd integer of from about 5 to about 25.
88. (currently amended) [[A]] The method according to claim 87 in which the subscript $n1$ is an integer of from 0 to about 8.
89. (currently amended) [[A]] The method according to claim 87 in which the subscript $n1$ is an integer of from about 2 to about 5.

90. (currently amended) [[A]] The method according to claim 87 in which the subscript n_2 is an odd integer of from about 7 to about 17.
91. (currently amended) [[A]] The method according to claim 87 in which the subscript n_2 is an odd integer from about 7 to about 13.
92. (currently amended) [[A]] The method according to claim 86 in which the carrier comprises a polypeptide having attached positively charged branching groups selected from HIV-TAT and fragments thereof.
93. (currently amended) [[A]] The method according to claim 92 in which the branching groups are positively charged HIV-TAT fragments that have the formula $(\text{gly})_p\text{-RGRDDRRQRRR-(gly)}_q$, $(\text{gly})_p\text{-YGRKKRRQRRR-(gly)}_q$, or $(\text{gly})_p\text{-RKKRRQRRR-(gly)}_q$, wherein the subscripts p and q are each independently an integer of from 0 to 20.
94. (currently amended) [[A]] The method according to claim 51 in which the positively charged branching groups comprise at least about 0.05% by weight of the total carrier weight.
95. (currently amended) [[A]] The method according to claim 51 in which the positively charged branching groups comprise from about 0.5% to about 45% by weight of the total carrier weight.

96. (currently amended) [[A]] The method according to claim 51 in which the positively charged branching groups comprise from about 0.1% to about 30% by weight of the total carrier weight.
97. (currently amended) [[A]] The method according to claim 51 in which the backbone comprises a positively charged polypeptide.
98. (currently amended) [[A]] The method according to claim 97 in which the backbone comprises a positively charged polylysine.
99. (currently amended) [[A]] The method according to claim 98 in which the polylysine has a molecular weight of from about 10,000 to 1.5 million.
100. (currently amended) [[A]] The method according to claim 98 in which the polylysine has a molecular weight of from about 25,000 to about 1,200,000.
101. (currently amended) [[A]] The method according to claim 98 in which the polylysine has a molecular weight of from about 100,000 to about 1,000,000.
102. (currently amended) [[A]] The method according to claim 51 in which the backbone comprises a positively charged nonpeptidyl carrier.

103. (currently amended) [[A]] The method according to claim 102 in which the positively charged nonpeptidyl polymer is polyalkylencimine.
104. (currently amended) [[A]] The method according to claim 102 in which the polyalkylencimine is a polyethyleneimine.
105. (currently amended) [[A]] The method according to claim 104 in which the polyethyleneimine has a molecular weight of from about 10,000 to about 2,500,000.
106. (currently amended) [[A]] The method according to claim 104 in which the polyethyleneimine has a molecular weight of from about 100,000 to about 1,800,000.
107. (currently amended) [[A]] The method according to claim 104 in which the polyethyleneimine has a molecular weight of from about 500,000 to about 1,400,000.
108. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin comprises a recombinant botulinum toxin.
109. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is applied in a composition having a pH of from about 4.5 to about 6.3.
110. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is applied in a controlled release composition.

111. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is contained in a liquid composition.
112. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is contained in a gel composition.
113. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is contained in a composition that is a cream, lotion or ointment.
114. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is contained in a composition further comprising saline.
115. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is contained in a composition further comprising saline and a pH buffer system.
116. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is contained in a device for dispensing the botulinum toxin, which device is applied topically to the skin or epithelium of the subject.
117. (currently amended) [[A]] The method according to claim 116 in which the device is a skin patch.

118. (currently amended) [[A]] The method according to claim 117 in which the device is a cell-encapsulating device.
119. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with mucous secretion.
120. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of obesity or symptoms thereof.
121. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of inflammation or symptoms thereof.
122. (currently amended) [[A]] The method according to claim 121 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with psoriasis.
123. (currently amended) [[A]] The method according to claim 122 in which the composition is applied in conjunction with other treatment modalities.
124. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of snoring.

125. (currently amended) ~~[[A]]~~ The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of cutaneous symptoms associated with diabetes.
126. (currently amended) ~~[[A]]~~ The method according to claim 54 in which the botulinum toxin is applied topically for improvement of wound healing.
127. (currently amended) ~~[[A]]~~ The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with autonomic nerve dysfunction.
128. (currently amended) ~~[[A]]~~ The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with cerebral palsy.
129. (currently amended) ~~[[A]]~~ The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with Hashimoto's thyroiditis.
130. (currently amended) ~~[[A]]~~ The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with mammary gland disorders.

131. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for alteration of hair growth.
132. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with parathyroid disorders.
133. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with movement disorders.
134. (currently amended) [[A]] The method according to claim 133 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with parkinson's disease.
135. (currently amended) [[A]] The method according to claim 133 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with tremors.
136. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with epilepsy.

137. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with inner ear disorders.
138. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with urologic disorders.
139. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of other cholinergic-controlled secretions.
140. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with neuropsychiatric disorders.
141. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with injured muscles.

142. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with ear disorders.
143. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with cancer.
144. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with nerve entrapment disorders.
145. (currently amended) [[A]] The method according to claim 54 in which the botulinum toxin is applied topically for prevention or reduction of symptoms associated with hypercalcemia.
146. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin comprises a fusion protein.

Claims 147 - 148 (cancelled).

149. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is botulinum toxin F.

150. (currently amended) [[A]] The method according to claim 51 in which the botulinum toxin is botulinum toxin G.